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GOOD MORNING. I APPRECIATE THE OPPORTUNITY TO BE HERE TODAY AND TO GIVE AMERICAN AIRLINES' PERSPECTIVE ON AN ISSUE WHICH IS EXTREMELY IMPORTANT TO THE FUTURE OF THE AIRLINE INDUSTRY AND TO THE NATION AS A WHOLE. THAT ISSUE IS THE CRISIS THAT WE BELIEVE IS COMING IF SIGNIFICANT IMPROVEMENTS AREN'T MADE – SOON – TO OUR COUNTRY'S AIR TRAFFIC CONTROL SYSTEM.

LET ME PREFACE MY REMARKS BY NOTING THAT TIMING IS ONE OF THE MOST IMPORTANT FACTORS TO CONSIDER IN THIS MATTER. WHAT WE'RE TALKING ABOUT IS THE CREATION, DEVELOPMENT, TESTING, INSTALLATION AND IMPLEMENTATION OF NEW TECHNOLOGY, WHICH INEVITABLY MEANS LONG LEAD TIMES. WHICH MEANS TO BE READY BEFORE WE'RE IN A CRISIS MODE, WE NEED TO GET STARTED NOW.

AT THE SAME TIME, WHEN WE TALK ABOUT MANAGING AIR TRAFFIC CONTROL, WE'RE ALSO TALKING – FIRST AND FOREMOST – ABOUT SAFETY. WE OPERATE IN A BUSINESS WHERE SYSTEM FAILURE IS NOT AN OPTION, AND OUR NEED TO ENSURE THE SAFETY OF AIR TRANSPORTATION MEANS THAT WE NEED TO DO EVERYTHING SLOWLY AND CAREFULLY – WHICH AGAIN MEANS WE NEED TO GET STARTED NOW.

SO, BEARING IN MIND THAT MODERNIZING OUR NATION'S AIR TRAFFIC CONTROL SYSTEM WILL BE A DAUNTING, TIME-CONSUMING TASK, AND THAT THE MARGIN FOR ERROR FOR THAT EFFORT IS ZERO, IS IT REASONABLE FOR US TO BE CONCERNED ABOUT THE CAPACITY OF THE AIR TRAFFIC CONTROL SYSTEM IN THE YEARS AHEAD? IN OUR VIEW, THE ANSWER IS CLEARLY YES.

IN 1997, AMERICAN AIRLINES COMPLETED A STUDY THAT DEMONSTRATED THAT WITHOUT SIGNIFICANT ENHANCEMENTS TO AIR TRAFFIC CONTROL CAPACITY, OUR NATION'S AIR TRANSPORTATION SYSTEM COULD BE HEADED FOR GRIDLOCK IN THE EARLY PART OF THE 21ST CENTURY. ASSUMING CONSERVATIVE GROWTH – WE ASSUMED A 2.3% ANNUAL INCREASE IN OPERATIONS -- TRAFFIC DELAYS FROM CONGESTION WILL INCREASE AT AN ACCELERATING RATE.

OUR STUDY FOUND THAT BY THE YEAR 2014, WITHOUT IMPROVEMENTS, THE AVERAGE FLIGHT WITHIN THE UNITED STATES DOMESTIC AIRSPACE WILL INCUR AN AVERAGE DELAY OF ABOUT FOUR MINUTES, WHICH IS ALMOST QUADRUPLE THE DELAY IN THE SYSTEM TODAY. WHILE A FOUR MINUTE AVERAGE DELAY MAY NOT SOUND ALL THAT SERIOUS, ITS OPERATIONAL IMPACT WOULD BE EXTREMELY ONEROUS FOR THE FOLLOWING REASONS.

FIRST, FOUR MINUTES IS COMMONLY USED AS THE UPPER LIMIT OF A TOLERABLE AVERAGE DELAY FOR SCHEDULED AIRPORT CAPACITY STUDIES. MORE IMPORTANTLY, FOUR MINUTES ACTUALLY REPRESENTS A "GRIDLOCK" SCENARIO WHEN COMBINED WITH THE TERMINAL DELAY AT MOST OF THE NATION'S FIFTY BUSIEST

AIRPORTS,
WHERE TERMINAL DELAY TENDS TO AVERAGE TWO TO THREE TIMES THE AVERAGE SYSTEM DELAY.

OUR STUDY ALSO SUGGESTS THAT FOUR MINUTES OF AVERAGE SYSTEM DELAY IS ALSO ASSOCIATED WITH INCREASING DEPARTURE QUEUE DELAYS – IN OTHER WORDS, AIRCRAFT WAITING LONGER TO TAKEOFF – WHERE DELAYS AS LONG AS TWO HOURS WERE OBSERVED AT LARGE AIRPORTS IN OUR SIMULATIONS.

OUR SIMULATIONS ALSO DEMONSTRATED THAT WHEN THE AVERAGE DELAY GOES UP, THE DISTRIBUTION OF DELAYS GROWS EVEN WIDER. WITH AN AVERAGE DELAY OF ONE AND A HALF MINUTES, LESS THAN ONE PERCENT OF FLIGHTS ARE DELAYED BY MORE THAN FIFTEEN MINUTES. HOWEVER, WHEN THE AVERAGE DELAY APPROACHES FOUR MINUTES, THE PERCENTAGE OF FLIGHTS DELAYED FIFTEEN MINUTES OR LONGER INCREASES MORE THAN SEVEN-FOLD.

THE WIDER RANGE OF DELAYS IMPLIED BY AN AVERAGE DELAY OF FOUR MINUTES OR MORE HELPS EXPLAIN WHY A SEEMINGLY SMALL NUMBER IS A REAL THREAT TO OUR OPERATIONAL INTEGRITY. BUT YOU MUST ALSO BEAR IN MIND THE EFFECT THAT A DELAYED ARRIVAL TENDS TO DELAY THE AIRCRAFT INVOLVED'S NEXT DEPARTURE. WHETHER WE TALK ABOUT A COMPLEX, INTENSIVE HUB AND SPOKE OPERATION, OR A TIGHTLY-SCHEDULED POINT-TO-POINT NETWORK, IT DOESN'T TAKE MUCH TO THROW AN ENTIRE DAY'S SCHEDULE OUT OF WHACK - DELAYING OUR CUSTOMERS AND MISCONNECTING THEIR BAGS.

AS DELAYS INCREASE, THE COSTS OF PROVIDING RELIABLE SCHEDULES TEND TO RISE EVEN FASTER, WHICH CAN RESULT IN HIGHER FARES. THIS IS ACCOMPLISHED BY ADDING BLOCK TIME TO OUR SCHEDULES OR ADOPTING LESS THAN OPTIMAL SCHEDULES. AND AS ANYONE WHO HAS EXPERIENCED A CROWDED CHAOTIC TERMINAL DURING A SEVERE WEATHER EVENT KNOWS, ANYTIME AN AIRLINE'S CAPACITY IS RESTRICTED, THE QUALITY OF SERVICE WE CAN OFFER OUR CUSTOMERS DECLINES DRAMATICALLY.

IN OUR VIEW, IF WE DON'T ACT IMMEDIATELY, WE ARE – AS A NATION – GOING TO FIND OURSELVES IN A REAL AIRSPACE CAPACITY BIND. THE GOOD NEWS IS THAT WE'VE IDENTIFIED THE PROBLEM AND AS AN INDUSTRY, WE'VE BEEN WORKING HARD TO PARTICIPATE IN AND FACILITATE THE IMPROVEMENT PROCESS.

I THINK MOST OF YOU HERE TODAY ARE PROBABLY FAMILIAR WITH THE CONCEPT OF FREE FLIGHT. THE TERM FREE FLIGHT ORIGINALLY EMERGED FROM IDEAS TO GAIN GREATER EFFICIENCY BY CHANGING THE PRESENT DAY AIR TRAFFIC CONTROL SYSTEM TO ONE IN WHICH AN AIRCRAFT COULD AUTONOMOUSLY SELECT THE MOST EFFICIENT ROUTE, ALTITUDE AND SPEED.

IN AN UNPRECEDENTED COLLABORATIVE EFFORT BY LEADERS OF BOTH GOVERNMENT AND INDUSTRY, FREE FLIGHT HAS SINCE MATURED INTO A FAR MORE COMPREHENSIVE CONCEPT, WHICH CULMINATED IN THE FREE FLIGHT ACTION PLAN IN 1996. WITH OVERSIGHT FROM A JOINTLY LED GOVERNMENT / INDUSTRY FREE FLIGHT STEERING COMMITTEE WHICH I CO-CHAIR WITH MONTE BELGER, THIS PLAN INCLUDES SPECIFIC RECOMMENDATIONS THAT ADDRESS THE NEED TO IMPROVE AIRSPACE EFFICIENCY AND CAPACITY IN THE NEAR, MEDIUM, AND FAR TERM.

THERE ARE TWO IMPORTANT ACCOMPLISHMENTS OF THIS EFFORT. FIRST, WE HAVE A

REALISTIC PLAN. AND SECOND, WE HAVE ACHIEVED A CONSENSUS OF ALL USERS, THE FAA, AND LABOR.

WHILE SOME OF THE NEAR TERM RECOMMENDATIONS ARE LOW-COST, INTUITIVE IMPROVEMENTS TO THE CURRENT AIR TRAFFIC CONTROL SYSTEM, OTHERS ARE VERY COMPLEX, LONG TERM PROJECTS THAT WILL REQUIRE VERY LARGE CAPITAL INVESTMENTS FROM BOTH THE FAA AND THE USERS OF THE SYSTEM.

THE FIRST PHASE OF FREE FLIGHT HAS BEEN DUBBED, APPROPRIATELY ENOUGH, FREE FLIGHT PHASE 1, AND IT INCLUDES FOUR PROGRAMS. THESE PROGRAMS, IN PRIORITY, ARE:

COLLABORATIVE DECISION MAKING – WHICH INVOLVES BETTER INFORMATION SHARING BETWEEN THE AIRLINES AND THE FAA, TO GET THE MOST OUT OF THE CAPACITY WE HAVE;

ENROUTE CONFLICT PROBE – WHICH WILL HELP AIR TRAFFIC CONTROLLERS PREDICT POTENTIAL TRAFFIC CONFLICTS EARLIER;

CENTER TRACON AUTOMATION SYSTEM – WHICH HELPS CONTROLLERS MORE EFFICIENTLY MANAGE THE FLOW OF TRAFFIC ARRIVING AT BUSY AIRPORTS; AND

SURFACE MOVEMENT ADVISOR – WHICH HELPS CONTROLLERS MAKE THE MOST OF LIMITED AIRPORT RESOURCES SUCH AS RUNWAYS AND TAXIWAYS.

FREE FLIGHT PHASE 1 ORIGINALLY INCLUDED ANOTHER PROGRAM CALLED DATA LINK, WHICH WAS SUBSEQUENTLY SEPARATED OUT OF THE PROGRAM WHEN DATA LINK'S FUNDING BASELINE WAS APPROVED BY THE FAA. DATA LINK WILL ENABLE AIR TRAFFIC CONTROLLERS AND PILOTS TO EXCHANGE MORE COMPLEX INFORMATION, WHICH STUDIES HAVE SHOWN CAN HELP AIR TRAFFIC CONTROLLERS HANDLE TRAFFIC MORE EFFECTIVELY, WHICH IN TURN CAN INCREASE AIRSPACE CAPACITY.

ITS WORTH NOTING THAT OF THE ORIGINAL FREE FLIGHT PHASE 1 PROGRAMS, DATA LINK IS THE ONLY ONE THAT REQUIRES THE AIRLINES TO MAKE LARGE INVESTMENTS IN AIRCRAFT AVIONICS. AMERICAN AIRLINES HAS STEPPED UP TO A SIGNIFICANT INVESTMENT COMMITMENT, AS WE WILL EQUIP A NUMBER OF OUR NEXT-GENERATION 737 AIRCRAFT WITH ADVANCED DATA LINK AVIONICS. WE HAVE ALSO COMMITTED TO BE THE PROTOTYPE OPERATOR IN MIAMI IN LATE 2000 OR 2001.

WITH THE IMPROVEMENTS INCLUDED IN FREE FLIGHT PHASE 1, PLUS DATA LINK, WE CAN "BUY" THE 10 YEARS WE CRITICALLY NEED TO DEVELOP AND IMPLEMENT THE MOST SOPHISTICATED TECHNOLOGIES THAT WE'LL NEED TO MEET GROWING AIR TRAVEL DEMANDS IN THE NEXT 25 OR 30 YEARS. ONE EXAMPLE OF A LONG TERM TECHNOLOGY IS THE USE OF SYTHETIC VISION CAPABILITY. NASA HAS COMMITTED $10 MILLION PER YEAR TO 2004 BUT OTHER AGENCIES REQUIRE FUNDING TO MAKE THIS A REALITY.

HOWEVER, AS I SAID, TIMING IS CRITICAL. DEVELOPING, TESTING, AND IMPLEMENTING ALL OF THE NECESSARY TECHNOLOGY WILL TAKE YEARS, AND DURING THAT TIME – AS AIR TRAFFIC GROWS – CONGESTION AND DELAYS WILL CONTINUE TO INCREASE. JUST FROM THE AIRLINES' POINT OF VIEW, INSTALLING ANY SINGLE NEW TECHNOLOGY IN OUR AIRCRAFT FLEET WILL LIKELY TAKE THREE TO FIVE YEARS. MULTIPLE,

INTEGRATED TECHNOLOGIES WILL TAKE EVEN LONGER.

IN ADDITION TO PROVIDING THE CAPACITY FOR OPERATIONAL GROWTH, IMPROVING THE EFFICIENCY OF OUR NATIONAL AIRSPACE SYSTEM WILL ALSO ENABLE US TO CREATE A MUCH LESS ENVIRONMENTALLY OFFENSIVE PRODUCT. WITH LESS WAITING TIME ON THE GROUND, AND MORE DIRECT ROUTINGS IN THE AIR, WE THINK EMISSIONS COULD BE REDUCED BY FIFTEEN TO TWENTY PERCENT.

IN ADDITION TO THE TECHNOLOGIES INCLUDED IN FREE FLIGHT PHASE 1 AND DATA LINK, THERE ARE SOME OTHER TECHNICAL INNOVATIONS WE THINK ARE CRITICAL TO ENHANCING SYSTEM CAPACITY. IN PARTICULAR, WE THINK GLOBAL POSITIONING SYSTEM TECHNOLOGY – OR GPS – SHOULD, ALONG WITH ITS COMPANION SYSTEMS, WIDE AREA AUGMENTATION SYSTEM – OR WAAS – AND THE LOCAL AREA AUGMENTATION SYSTEM – OR LAAS – BE ENDORSED AS THE NAVIGATION SYSTEM FOR THE NEXT CENTURY.

ALTHOUGH THE TECHNICAL DETAILS OF GPS, WAAS, AND LAAS ARE QUITE COMPLEX, THE INTEGRATED SYSTEM HAS ENORMOUS POTENTIAL FOR REVOLUTIONIZING NATIONAL AIRSPACE MANAGEMENT IN A COST-EFFECTIVE WAY.

MORE EFFICIENT AIRSPACE DESIGN WOULD NOT BE CONSTRAINED BY THE COSTS, LOCATION, AND NUMBER OF GROUND-BASED NAVIGATION FACILITIES THAT RESULT IN CIRCUITOUS, FIXED ROUTINGS. THIS REDUCES FUEL BURN AND EMISSIONS.

MORE ROUTES CAN BE PUT INTO THE AIRSPACE WHERE CAPACITY IS MOST CONSTRAINED.

MORE ACCURACY WILL IMPROVE PREDICTABILITY AND CONSISTENCY OF AIRCRAFT FLIGHT PATHS, REDUCING THE AREA IMPACTED BY NOISE.

IN OUR VIEW, GPS HAS ENORMOUS POTENTIAL FOR IMPROVING NATIONAL AIRSPACE MANAGEMENT IN A COST-EFFECTIVE WAY. THE GOVERNMENT HAS ALREADY INVESTED MOST OF THE MONEY NEEDED TO DEVELOP GPS, WAAS AND LAAS, AND THIS IS AN EXCELLENT EXAMPLE OF AN OPPORTUNITY TO CONVERT A SYSTEM ORIGINALLY INTENDED FOR MILITARY APPLICATIONS TO COMMERCIAL USE.

GPS IS ACCESSIBLE TO ALL AIRSPACE USERS – INCLUDING GENERAL AVIATION – AT A REASONABLE COST, AND IT'S EXTREMELY ACCURATE, WHICH – LIKE ANY NEW TECHNOLOGY – WILL ENABLE US TO MAKE BREAKTHROUGHS IN WAYS WE'VE PROBABLY NOT YET ENVISIONED.

IN CONCLUSION, IN OUR VIEW, THE UNITED STATES IS RAPIDLY APPROACHING A CRISIS SITUATION WITH REGARDS TO AIRSPACE AND AIR TRAFFIC CONTROL CAPACITY. THE IMPROVEMENTS NEEDED WILL TAKE MANY YEARS TO DEVELOP, TEST AND IMPLEMENT, AND DEMANDS CONTINUE TO GROW. THE INNOVATIONS EMBEDDED IN FREE FLIGHT PHASE 1, DATA LINK AND GPS HAVE THE POTENTIAL TO DELIVER THE IMPROVEMENTS WE NEED IN THE SHORT TERM, BUT OUR NARROW WINDOW OF OPPORTUNITY TO AVOID GRIDLOCK IS CLOSING.

I'M SURE EVERYONE HERE WOULD AGREE THAT COMMERCIAL AVIATION IS AN IMPORTANT PIECE OF OUR NATION'S ECONOMIC INFRASTRUCTURE. BECAUSE THE CAPACITY OF OUR NATIONAL AIR SPACE LITERALLY DEFINES OUR GROWTH POTENTIAL IN THE YEARS TO COME, WE STAND READY TO WORK WITH THE FAA, CONGRESS AND

ANYBODY ELSE TO HELP MAKE THE IMPROVEMENTS NECESSARY TO ENSURE OUR CONTINUED CONTRIBUTION TO OUR NATION'S ECONOMIC VIGOR IN THE YEARS TO COME.